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SPORE FORMS OF SPEGAZZINIA ORNATA SACC.¹

ERNST A. BESSEY.

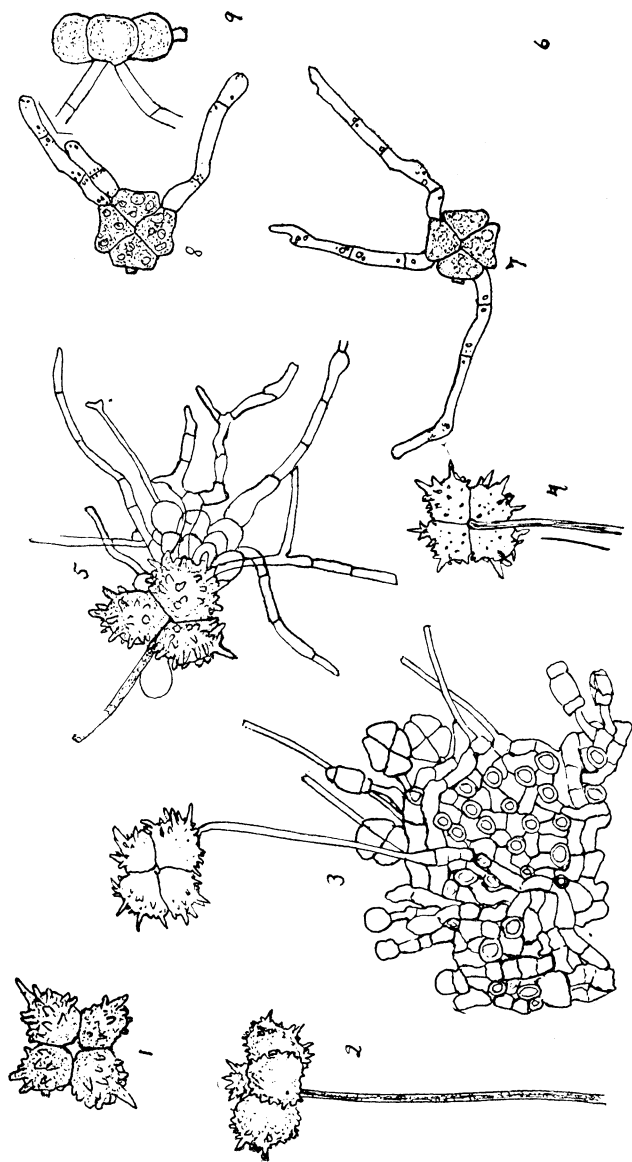
The group, *Tuberculariaceae Dematieae*, to which genus *Spegazzinia* belongs is a rather artificial one containing some fungi of undoubted close relationship but others whose affinities are certainly with other groups. The genus *Spegazzinia* seems to stand rather apart from any other genera in this group on account of the peculiar structure of the spores. The genus was first described by Saccardo² from specimens collected in Italy, with the single species *S. ornata*. Some six or more species have since been described so that representatives of this genus are known to occur also in South America, Mexico and United States, and doubtless many other parts of the world. The species are mostly saprophytic,³ attacking different leaves, herbaceous stems and wood, and in one instance observed by the writer, the dead skin of a pomelo (*Citrus decumana*). They are most commonly found on dead parts of grasses. The specimens examined by the writer were collected by him in Florida on dead grasses, pineapple leaves and pomelo skin, in addition to specimens collected by Langlois in Louisiana (under the name of *S. tessarthra*) and a specimen on unknown host from Texas. Through the kindness of Professor Saccardo who sent the writer, on request, an authentic specimen of *S. ornata* collected by him in Treviso in 1877, it was possible to identify all the above-mentioned specimens as belonging to this species. The differences between the specimens on different hosts in different localities were not greater than the difference between spores in the same lot of material.

The mycelium within the substratum is colorless. On the surface are produced here and there larger or smaller masses of closely woven, thick-celled, dark-colored septate threads. In some cases these bodies may attain a diameter of 5 mm. and be from 50-100 μ thick, forming a definite sporodochium, but often there are not more than one or two layers of threads. In such a case it is difficult to see why the fungus is put in with the *Tuberculariaceae*. Arising from these dark-colored threads are conidiophores which bear two kinds of conidia (Fig. 3), long-stalked, spiny conidia and short-stalked, smooth conidia; the latter are borne on stalks 5-8 μ long, occasionally longer, arising directly from the hyphae of the sporodochium. These conidia are cruciately four-celled and flattened in the plane in which the stalk lies (Figs. 6,

¹ Read before Section G., A. A. A. S., December, 1906.

² Saccardo, P. A. *Spegazzinia, novum Hyphomycetum genus*. Padova. 1879.

³ *Spegazzinia trichophila* Atkinson, a form lacking sporodochia, as well as *S. meliolicola* Henn. and *S. meliolae* Zimm. are found accompanying and perhaps parasitic upon species of *Meliola*.



SPORE FORMS OF *SPEGAZZINIA ORNATA* SACC.

7, 8), the latter being attached at the middle of one edge of one of the cells. The spores are 6-8 μ thick and 13-16 μ wide and high. Usually the conidiophore separates from the spore leaving a portion but one or two microns long, although occasionally the whole conidiophore may remain attached when the spore separates from the sporodochium. The spiny spores are long-stalked, the stalks being 30-120 (usually 50-70) μ long. These conidiophores are non-septate. The spores are like the preceding, four-celled, but the constrictions between the cells are deeper and the outer portions are spiny; the plane passing through the four cells is perpendicular to the conidiophore which is fastened at the point where the four cells meet (Figs. 1, 2 and 4). In the original description of the species, as well as that occurring in the *Sylloge Fungorum*,⁴ the fungus is described as consisting of superficial sporodochia with fasciculately-radiating, filiform, non-septate, fuscous hyphae, 99-100 x 2-3 μ , terminating in fuliginous, mostly four-celled, sporophores upon which are borne on subhyaline, acicular sterigmata, sarciniform-four-celled, fuliginous smooth conidia, constricted at the septa, 16-20 μ in diameter. Essentially the same description is given in *Die natürlichen Pflanzenfamilien*.⁵ Examination of Fig. 3 (which was drawn with camera lucida) will convince one, however, that this description is erroneous, for it will be seen that the two forms of spores are borne independently of one another directly from the sporodochial hyphae, instead of the smooth spores being conidia borne upon a spiny, long-stalked sporophore. The writer made pure cultures of the fungus obtained on dead pineapple leaves and found that under certain conditions only smooth-celled conidia would be formed, while at other times, none but the long-stalked, spiny forms would appear; while still again both would be mixed on the same sporodochium. Hanging drop cultures were then made to observe the germination of the two types. The smaller smooth spores germinated quickly, usually within a day or two, mostly with one germ tube from each cell (Figs. 7, 8, and 9, Fig. 9 being an abnormally-shaped and unusually large spore). The germ tubes are stout with several granules near the partitions. The spiny spores germinated with difficulty after three days, or even longer, producing first many hyaline, bladder-like structures from

⁴Vol. 4: p. 758, 1886. "*Sporodochiis superficialibus. * * * ** hyphis fasciculato-radiantibus, filiformibus, 90-100 x 2-3, eseptatis, fuscis in sporophora, saepius 4-cellularia, fuliginea desinentibus; conidiis e sporophoris per sterigmata acicularia subhyalina, 30-40 μ long. oriundis, sarciniformi-subquadricellularibus, ad septa constrictis, 16-20 diam. fuligineis, levibus."

⁵I Teil, 1. Abt.** p 515, 1900. "Conidienlager gewölbt, dicht schwarz. Hyphen dicht stehend, am Ende in einem mehrzelligen, *Sarcina*-artigen, sporentragenden Teil endigend. Conidien aus dem sporentragenden Teil mit einem Sterigma entspringend, *Sarcina*-artig gestaltet, häufig über Kreuz vierzellig, dunkel gefärbt."

which later mostly slender, branching germ tubes were produced. (Fig. 5, showing, for the sake of clearness, only part of the bladder-like structures and germ tubes).

In various culture media, the writer was unable to obtain any further forms of this fungus.

EXPLANATION OF PLATE IOI.

Fig. 1. Top view of spiny spore from pineapple leaf, x 750.

Fig. 2. Side view of spiny spore from *Cenchrus*, x 750.

Fig. 3. Portion of sporodochium on *Cenchrus*, showing two kinds of spores and scars where sporophores have fallen away, x 750.

Fig. 4. Underview of spiny spore on *Cenchrus*, showing mode of attachment of sporophore to spores, x 500.

Fig. 5. Germination of spiny spore from pineapple leaf (only a portion of the germ tubes being shown, for the sake of clearness), x 600.

Fig. 6. Smooth spore from *Cenchrus*, showing sporophore, x 600.

Figs. 7. and 8. Smooth spores from pineapple leaf, in germination, x 600

Fig. 9. Abnormal smooth spore, from pineapple, in germination, x 700.

All drawings were made with the aid of the camera lucida.

Subtropical Laboratory, Miami, Florida.

NEW FUNGI FROM NEW YORK.

P. A. SACCARDO.

The following fungi were collected by Dr. C. E. Fairman, near Lyndonville, N. Y., and submitted to me for determination:

PLEOSPHAERIA FAIRMANIANA Saccardo sp. nov.

Peritheciis laxe gregariis v. subsparsis, superficialibus, globosis, nigris, membranaceo-carbonaceis, 250-280 μ diam., vertice rotundatis, non papillatis, utique laxe setulosis; setulis filiformibus, obtusulis, indistincte septulatis, fuligineis, 85-100 x 5-6 μ , in fasciculos rigidulos junctis; ascis cylindraxis, octosporis, 100-120 x 12 μ , indistincte paraphysatis; sporidiis oblique monostichis, oblongo-ovoideis, sursum crassioribus, 3-septatis (rarius 4-septatis), medio constrictis, parceque muriformibus, 19-23 x 7.5-9 μ , olivaceo-fuscis.

Hab. in ligno carioso indurato Ulmi americanæ. Lyndonville, N. Y., Maio 1906, Doct. C. E. Fairman, no. 55.